

REMARKS

In response to the above Office Action, the Abstract has been amended to comply with M.P.E.P. §608.01(b).

In addition, the claims have been amended to place them in more traditional format and to more positively claim the cocoon shape of the colloidal silica of the invention. The scope of the claims remains the same.

In the Office Action, the Examiner rejected claims 1-10 under 35 U.S.C. §102(e) for being anticipated by U.S. Patent No. 6,652,612 to Nakayama et al. and under 35 U.S.C. §102(a) for being anticipated by U.S. 2003/0089045 to Nakayama et al. Since the disclosures of both are the same, they will be referred to collectively as Nakayama.

Nakayama discloses a colloidal silica known in the prior art. According to Applicant, prior art colloidal silica includes hydro-thermally synthesized colloidal silica (silica A) and colloidal silica synthesized by known sol gel methods (silica B), but both result in "spherical" silica. As disclosed, for example, in the abstract and in column 5, lines 52-54 of Nakayama '612, the silica particles have a "particle diameter in the range of 5 to 300 nm." In contrast, all of Applicant's independent claims 1-3, 7 and 8 specifically require that the colloidal silica "having a cocoon shape."

Accordingly, it is not believed that these claims or the claims dependent therefrom are anticipated by Nakayama. Its withdrawal as a ground of rejection of the claims under §102(a) and (e) is therefore requested.

The Examiner also rejected claims 1-6 under 35 U.S.C. §102(b) for being anticipated by or in the alternative, under 35 U.S.C. §103(a) for being obvious over EP 1 173 483, hereafter EP'483.

As described in the specification on page 3, fourth line from the bottom to page 4, line 9, Japanese patent 3195569, hereafter JP'569 (equivalent to JP 11-60232 filed with the Information Disclosure Statement of July 18, 2005) describes a method for producing cocoon-shaped colloidal silica (silica C) that is different from the methods for producing silica A or B which give only spherical colloidal silica.

The present invention is an improvement of the silica C disclosed in JP'569. In the present invention, an alkoxysilane is oligomerized by an acid catalyst and the obtained oligomer is reacted in the presence of an ammonia or ammonium salt catalyst to produce a cocoon-shaped colloidal silica having a higher efficiency in high precision abrasion operation compared to the cocoon type colloidal silica of the prior art. Comparative Example 1 of the application (pages 13-14) is silica C of the prior art as taught in JP'569 and as noted on page 14, lines 9-15, it dissolved in an aqueous alkali solution having a pH of 11.5.

In Applicant's opinion, the cocoon-shaped silica particles (silica C) of EP'483 are produced by the method described in JP'569 and hence they are not the same as the cocoon-shaped colloidal silica of the present invention as discussed above.

The silica C of EP'483 is nothing but a silica obtained by mixing silica C having good precision abrasion properties with a spherical crystal silica having good alkaline resistance, leading to an apparent improvement of the alkaline resistance. Consequently, the alkaline resistance of the cocoon type colloidal silica itself is not improved. The present invention is an improvement of the alkaline resistance of the cocoon type colloidal silica itself, and thus, it is not anticipated by or obvious from the disclosure of EP'483.

Claims 1-10 were also rejected under 35 U.S.C. §103(a) for being obvious over EP'483 further in view of U.S. Patent No. 6,432,151 to So et al., hereafter So. EP'483 is discussed above. So relates to a product obtained by using fused silica or colloidal silica A as the silica which serves as the nuclei in a sol gel reaction and hydrolyzing alkoxysilane thereby to grow the particles. The silica produced by So consists of an agglomeration of not less than 10 seed silica particles, as shown in Fig. 5. Thus it is different in shape from that of the silica of the present invention. It is not possible from the method of So to produce silica having the same shape as that of the silica of the present invention as set forth in the claims. Consequently, any attempt to combine it with EP'483 to disclose what is missing in the reference is hindsight and comes from a reading of Applicant's specification and not from anything taught by either reference.

Accordingly, it is submitted that neither the inventions of claims 1-3, 7 and 8 nor of claims 4-6, 9 and 10 dependent therefrom are obvious over EP'483 in view of So.

It is believed claims 1-10 are in condition for allowance.

In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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Attachments: New Abstract

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